

Attorney Docket No. 13109.00011

PATENT
Customer No. 22444

We claim:

1. A seismic receiver for detecting seismic energy and digital data relating to the detected seismic energy to a data recorder, the receiver comprising:

a casing;
a seismic energy detector that detects the seismic energy and converts the detected seismic energy into an analog electrical signal;
an analog to digital converter, coupled to the seismic energy receptor, that converts the analog electrical signal into the digital data;
a digital signal transmission circuitry, coupled to the analog to digital converter, that transmits the digital data to the data recorder; and
the seismic energy detector, the digital transmission circuitry, and the analog to digital converter housed within the casing.

2. The seismic receiver of claim 1, further comprising:

a control circuitry, coupled to the analog to digital converter, that controls functions associated with the operation of the seismic receiver.

3. The seismic receiver of claim 2, further comprising an amplifier, coupled to the analog to digital converter, that amplifies the analog signal.

4. The seismic receiver of claim 3 wherein the control circuitry controls the amplifier.

5. The seismic receiver of claim 2, further comprising a power management circuitry, the power management circuitry housed in the casing and providing power to components of the seismic receiver.

6. The receiver of claim 2 wherein the control circuitry provides clock signals to the analog to digital converter.

7. The seismic receiver of claim 2 wherein the control circuitry is operable to receive a signal from the external source, and initiates a transmission of the data in response to the signal.

- 1 8. The seismic receiver of claim 2 wherein the digital transmission circuitry and
2 the analog to digital converter are embodied on a PCB in the casing.
- 1 9. A method for obtaining seismic data, the method comprising:
2 detecting a seismic event at a seismic receiver;
3 converting the seismic event into an analog electrical signal;
4 converting the analog electrical signal into a digital data within the
5 receiver;
6 awaiting a signal to transfer the digital data;
7 transferring the digital data to a remote collection device upon
8 receiving the signal to transfer.
- 1 10. The method of claim 8 wherein the signal to transfer is generated from outside
2 of the receiver.
- 1 11. The method of claim 8 wherein the signal to transfer is generated from within
2 the receiver.
- 1 12. The method of claim 8 wherein the step of converting the analog signal is
2 accomplished with an analog to digital converter.
- 1 13. The method of claim 8 further comprising the step of amplifying the analog
2 electrical signal.
- 1 14. The method of claim 8 wherein the step of transferring is accomplished at
2 least in part with a control circuitry located within a casing of the seismic receiver.
- 1 15. A method of collecting seismic data from a seismic receiver at a collection
2 device, the seismic receiver collecting seismic energy, the method comprising:
3 determining a digital signal indicative of the seismic energy within the
4 receiver; and
5 transmitting the digital signal to the collection device.
- 1 16. The method of claim 15, wherein the step of transmitting is performed in
2 response to a signal from the collection device.

- 1 17. The method of claim 15, wherein the step of transmitting is performed in
2 response to a signal from another receiver.
- 1 18. The method of claim 15 further comprising the step of storing the digital
2 signal.
- 1 19. An apparatus to digitize a seismic signal collected by a seismic signal collector of
2 a seismic receiver, the seismic receiver having a casing, the apparatus comprising:
3 a board capable of conducting electrical signals;
4 a digitizer, communicatively coupled to the seismic signal collector
5 and contained on the board, that digitizes the seismic signal; and
6 the board fitting inside the seismic receiver.
- 1 20. The apparatus of claim 19 further comprising:
2 control circuitry, communicatively coupled to the digitizer, that
3 controls the digitizing of the seismic signal.
- 1 21. The apparatus of claim 19 wherein the board can be folded on itself without
2 breaking the electrical connections contained thereon.
- 1 22. A seismic streamer that collects seismic data and transmits digital data
2 representative of collected seismic data to a collection device, the seismic streamer
3 comprising:
4 a plurality of seismic receivers communicatively coupled to one
5 another through a transmission line, at least one of the seismic receivers comprising:
6 a casing;
7 a seismic energy detector that detects the seismic energy and
8 converts the detected seismic energy into an analog electrical signal;
9 an analog to digital converter, coupled to the seismic energy
10 receptor, that converts the analog electrical signal into the digital data;
11 a digital signal transmission circuitry, coupled to the analog to
12 digital converter, that transmits the digital data to the data recorder; and
13 the seismic energy detector, the digital transmission circuitry,
14 and the analog to digital converter housed within the casing.

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- 1 23. A seismic exploration system for collection digital data representative of
2 collected seismic data, the system comprising:
3 a data recorder that collects digital data representative of collected
4 seismic data; and
5 a plurality of seismic receivers communicatively coupled to one
6 another through a transmission line, at least one of the seismic receivers comprising:
7 a casing;
8 a seismic energy detector that detects the seismic energy and
9 converts the detected seismic energy into an analog electrical signal;
10 an analog to digital converter, coupled to the seismic energy
11 receptor, that converts the analog electrical signal into the digital data;
12 a digital signal transmission circuitry, coupled to the analog to
13 digital converter, that transmits the digital data to the data recorder;
14 the seismic energy detector, the digital transmission circuitry,
15 and the analog to digital converter housed within the casing.

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